

A REVIEW OF THE *BASALIS* GROUP
OF THE GENUS *CHRYSOBOTHRIS*
(COLEOPTERA: BUPRESTIDAE)

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ABSTRACT

The habits, geographical distribution, and taxonomy of 13 species from the United States, Mexico, and El Salvador are discussed. Adults prefer leguminous shrubs of the genera *Prosopis*, *Acacia*, and *Cercidium* in which to oviposit, and Mexico appears to be the center of distribution for this group. Illustrations and a key to separate the species are presented, and the following 7 new species are described: *Chrysobothris paramodesta*, and *C. vogti* from Mexico, Yucatan; *C. explicationis* from Mexico, Sinaloa; *C. knulli* from Arizona; *C. brevitarsis* from Mexico, Oaxaca; *C. verityi* from Mexico, Michoacan; and *C. paratabalipa* from Mexico, Oaxaca.

INTRODUCTION

The confusion that has existed concerning the identity of the species in the *basalis* group of *Chrysobothris* has resulted from the close similarity of their external morphology. Horn (1886) considered *C. basalis* LeC. a synonym of *C. atabalipa* Lap. & Gory. Waterhouse (1887) considered *C. multistigmata* (Mann.), *C. atabalipa* Lap. & Gory, and *C. basalis* LeC. to be 1 species with the males exhibiting dimorphic antennae. Obenberger (1934) considered *C. basalis* as a synonym of *C. multistigmata* (Mann.). Fisher (1942) recognized that these species were distinct from each other but did not treat those from Mexico. His concept of *C. multistigmata* (Mann.) wasn't clear, however, since Knull (1947) mentioned Arizona records of that species based on determinations by Fisher. These specimens actually represent a new species, *C. knulli* Nelson. It is apparent from his discussion and illustrations that Domínguez (1969) included several species under *C. basalis* LeC.

The types of all described species have been studied, and examination of the male aedeagi and last visible abdominal segment of females has revealed useful characters for separating the 13 species, 7 of which are described as new. Drawings of the critical anatomical features and a key are presented to facilitate identification. The species are numbered for easier reference between the key and the descriptions. Abbreviations for institutions and individuals used in this paper are indicated in the acknowledgements.

BIOLOGY

With the exception of *C. octocola* LeC., which has been reared from *Prosopis juliflora* and *Cercidium floridum*, rearing records are unknown for the species of this group. However the adults have been collected on several species of leguminous trees, especially of the genera *Prosopis* and *Acacia*.

They show a preference for recently downed trees or the dead or dying branches on standing trees where the adults can be found either resting, running actively along the trunk or branches, or ovipositing on them.

GEOGRAPHICAL DISTRIBUTION

The center of distribution for this group of *Chrysobothris* appears to be central Mexico with extensions northward into southwestern United States, eastward into Yucatan and Quintana Roo, and southward as far as Nicaragua.

The following species have their centers of abundance in the central part of Mexico according to collecting records: *C. multistigmata* (which extends as far north as Ciudad Victoria and south to El Salvador), *C. storkani* (primarily east central), *C. verityi* (known only from Michoacan), *C. paratabalipa* (extends south to the state of Oaxaca), *C. atabalipa* (extends south to Chiapas and east to Quintana Roo), and *C. modesta* (extends south to Oaxaca). The species of mainly northern distribution include *C. explicationis* from the states of Nayarit and Sinaloa, *C. knulli* from northwest Mexico and Arizona, *C. basalis* principally from northeast Mexico and southwest United States, and *C. octocola* from northern Mexico including Baja California and all of southwest United States. Two species, *C. vogti* and *C. paramodesta*, are known from Yucatan and Quintana Roo, while 1 species, *C. brevitarsis*, has a more southern distribution, from Oaxaca in Mexico, and Nicaragua.

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CLASSIFICATION

Family BUPRESTIDAE

Tribe CHRYSOBOTHRINI

Genus *CHRYSOBOTHRIS* Eschscholtz

The species of the *basalis* group of *Chrysobothris* are characterized by the following features: body form elongate with parallel sides; pronotum convex

without median channel; elytron with 4 costae, medial 2 weak at base and strongly raised apically and lateral 2 obsolete; and with 4 punctate foveae, 1 at base, second before middle interrupting second costa, third just behind middle interrupting third costa, and fourth near apical third between first and second costae; lateral margins of last visible abdominal sternite serrate; and protibia of male with series of small teeth (Fig. 1, 2).

The general body color of aeneo- or cupreous-brown does not vary much, however it is definitely blueish in *C. verityi*. The front of the head contrasts with the body color in the males being golden or greenish while it is more like the general color in the females.

HEAD. Modifications are minor except in depth of the clypeal emargination, helping to distinguish *C. modesta* from *C. octocola*. Of more significance are the differences in shape of the third segment of the male antennae. It is broadly triangular in *C. basalis* and *C. multistigmata* but elongate in the other species.

PRONOTUM. Variations here do not appear to be distinctive, and the scutellum is relatively small and acuminate.

ELYTRA. The general form and surface sculpturing is rather uniform in this group, with some variation in the size of the discal foveae and extent of the lateral serrations.

VENTRALLY. Males tend to have more setae than females, and differences in density and distribution of setae are sometimes distinctive. Tibial shape varies from arcuate to straight, with male protibiae and sometimes mesotibiae having a row of small teeth. The distribution of femoral teeth varies also. The variations in sculpture at the apex of the last visible abdominal sternite in the female are useful in distinguishing among some species. The pygidium of the female exhibits modifications in surface carinae and apical teeth and/or notches that are useful in differentiating the species.

MALE GENITALIA. The general shape of the parameres is one of the most useful characters in separating species, although rather uniform within specific limits, it is sometimes strikingly different in otherwise closely similar species. The apex of the penis is rounded or truncate.

RELATIONSHIPS OF SPECIES

A study of the modifications in the third antennal segment and aedeagi of the male, and in the last visible abdominal segment of the female, gives some indication of inter-species relationships within the *basalis* group of *Chrysobothris*. In comparing these features I see 4 subgroups.

One subgroup involves 2 species: *C. basalis*, and *C. multistigmata* which have the third antennal segment of the male broadly triangular, the male aedeagi are not strongly narrowed apically, and the pygidium of the female has a midline carina and apical notch bounded by ventrally projecting teeth. *C. basalis* occurs in northeastern Mexico and southwestern United States, while *C. multistigmata* occurs primarily in central and southern Mexico to El Salvador.

The second subgroup includes 3 relatively small species: *C. paramodesta*, *C. modesta*, and *C. octocola*. This subgroup has the third antennal segment elongate in both sexes, the male aedeagi are not strongly narrowed apically, and the pygidium of the female has a midline carina and apical notch not bounded by teeth. *C. modesta* occurs in the central part of Mexico, *C.*

paramodesta eastward in Yucatan and Quintana Roo, and *C. octocola* in northern Mexico including Baja California and southwestern United States.

The third subgroup includes 2 species: *C. vogti*, and *C. storkani*. The first is from Yucatan and Quintana Roo, and the second is from eastern central Mexico. This subgroup has characteristics of antennae and male aedeagi in common with subgroup 2, but the modifications of the pygidium of the female, with a projecting midline tooth without projecting postero-lateral angles, indicates a transition toward subgroup 4.

Subgroup 4 includes 6 species: *C. explicationis*, *C. knulli*, *C. brevitarsis*, *C. verityi*, *C. atabalipa*, and *C. paratabalipa*. Most of these occur in central Mexico, with *C. brevitarsis* more southern, *C. explicationis* in northwest Mexico, and *C. knulli* in northwest Mexico and Arizona. This subgroup has the third antennal segment of the male elongate, the male aedeagi with strongly narrowed apices, and the pygidia of the females with projecting postero-lateral angles.

Key to Species of the *Basalis* Group of *Chrysobothris*

1. Third antennal segment of male triangular, nearly as wide as long (Fig. 4); pygidium of female with pair of deflexed apical tooth-like lobes and discal median carina (Fig. 9, 10) 2
- 1'. Third antennal segment of male elongate, not broadly triangular (Fig. 3); pygidium of female without pair of deflexed apical tooth-like lobes and if discal median carina is present then with apical notch (Fig. 11-19)..... 3
- 2(1). Aedeagus of male with apex of penis truncate (Fig. 20); only profemur of male with dense brush on inner margin; pygidium of female with weak median carina, shallow depression on either side of carina, and apical deflexed tooth-like lobes as wide as emargination separating them (Fig. 9) [southwestern United States to central Mexico] 1. *C. basalis* LeConte
- 2'. Aedeagus of male with apex of penis narrowly rounded (Fig. 21); pro- and mesofemora of male with dense brush on inner margin; pygidium of female with strong median carina, deep depression on either side, and apical deflexed tooth-like lobes narrower than emargination separating them (Fig. 10) [middle and southern Mexico]..... 2. *C. multistigmata* (Mannerheim)
- 3(1'). Aedeagus of male with parameres either abruptly narrowed with elongate slender apex or dorsum of parameres with definite median channel; if pygidium of female has median apical tooth it either has notch on either side or lateral margin is rather parallel sided toward base 4
- 3'. Aedeagus of male with parameres tapering gradually to apex without apical prolongation and dorsum of parameres convex without apparent median channel (Fig. 25); pygidium of female with lateral margins rounded from base and with median apical tooth (Fig. 14) [Yucatan and Quintana Roo] 6. *C. vogti* Nelson
- 4(3). Males with parameres of aedeagus more gradually narrowed and without pronounced slender apex (Fig. 22-24); pygidium of female with strong median carina, distinct depression on either side, and with apical notch without tooth-like lobes (Fig. 11-13) 5

- 4'. Males with parameres of aedeagus distinctly constricted with a usually pronounced slender apex (Fig. 26-32); pygidium of female without or with only weak discal carina or depressions but with apical tooth-like projections (Fig. 15-19) 7
- 5(4). Aedeagus of male with parameres widest near lateral teeth, apex of penis narrow (Fig. 22); pygidium of female with small apical notch (Fig. 11) [Yucatan and Quintana Roo]..... 3. *C. paramodesta* Nelson
- 5'. Aedeagus of male with parameres widest much basal to lateral teeth, apex of penis less narrow (Fig. 23, 24); pygidium of female with larger apical notch (Fig. 12, 13) 6
- 6(5'). Aedeagus of male with teeth on lateral margin of parameres not as strong and not as near apex (Fig. 23); last visible abdominal sternite of female with middle of subapical crest notched and with median carina usually extending from base to notch (Fig. 6) [central Mexico] 4. *C. modesta* Waterhouse
- 6'. Aedeagus of male with teeth on lateral margin of parameres strong, more pyramidal and located slightly nearer apex (Fig. 24); last visible abdominal sternite of female with middle of subapical crest not retracted and median carina extending base only part way to subapical crest (Fig. 7) [southwest United States and Baja California to northern Mexico]..... 5. *C. octocola* LeConte
- 7(4'). Color blue with aeneous tint [Michoacan] 11. *C. verityi* Nelson
- 7'. Color brassy to cupreous-brown 8
- 8(7'). Color shining cupreous; aedeagus of male only moderately constricted and with moderately narrowed apex (Fig. 26); pygidium of female with apical median tooth without notch on either side (Fig. 17) [Veracruz to San Luis Potosi & Oaxaca] 7. *C. storkani* Obenberger
- 8'. Color usually less shining; aedeagus of male strongly tapered to prominent narrowed apex (Fig. 27-32); pygidium of female either without median apical tooth or with notch on either side of median tooth (Fig. 15, 16, 18, 19) 9
- 9(8'). Aedeagus of male with parameres strongly but gradually narrowed to long slender apex (Fig. 27, 28); pygidium of female either with apex notched at middle or with tooth projecting but little beyond lateral lobes (Fig. 15, 16) 10
- 9'. Aedeagus of male with parameres abruptly narrowed to slender apex (Fig. 29-32); pygidium of female with apical median tooth usually strongly projecting beyond lateral lobes (Fig. 18, 19) 11
- 10(9). Aedeagus of male less gradually tapering to slender apical part and when viewed from side strongly angulate below (Fig. 27); pygidium of female with median apical tooth (Fig. 15) [Sinaloa, Nayarit] 8. *C. explicationis* Nelson
- 10'. Aedeagus of male more gradually tapering to slender apical part and when viewed from side weakly angulate below (Fig. 28); pygidium of female with median apical notch and posteriorly projecting teeth on either side (Fig. 16) [Arizona, Sonora, Sinaloa, Chihuahua] 9. *C. knulli* Nelson

- 11(9'). First joint of metatarsus less than 2.5 times as long as high (Fig. 8a); parameres of male aedeagus strongly angulate at sides and without lateral teeth (Fig. 29); smaller species, 14 to 16.5mm [Oaxaca to Nicaragua]..... 10. *C. brevitarsis* Nelson
- 11'. First joint of metatarsus 2.5 or more times as long as high (Fig. 8b); parameres of male aedeagus parallel at sides proximal to constriction and with lateral teeth (Fig. 31, 32); larger species, usually over 16mm 12
- 12(11'). Narrowed apical region of male aedeagus shorter, aedeagus when viewed from side gently angulate below at middle (Fig. 31); females with mesotibia slightly arcuate and averaging shorter (16 to 21mm, average 18.2mm).....
..... 12. *C. atabalipa* Laporte & Gory
- 12'. Narrowed apical region of male aedeagus elongate, aedeagus when viewed from side abruptly angulate at middle below (Fig. 32); females with mesotibia straight and averaging longer (18 to 24mm, average 21.6mm) 13. *C. paratabalipa* Nelson

1. *Chrysobothris basalis* LeConte
(Fig. 9, 20)

Chrysobothris basalis LeConte, 1858, Acad. Nat. Sci. Philadelphia Proc. [10]:68.

DIAGNOSIS: Cupreous-brown above, elytral foveae usually contrasting to general color, brighter aeneo-cupreous below; male with third antennal segment triangular (Fig. 4); profemur with dense brush on inner margin; apex of penis truncate (Fig. 20); female pygidium with weak median carina, shallow depressions on either side of carina, and apical notch of same width as ventrally projecting teeth (Fig. 9).

This species is well described by Fisher (1942). Female differs from male as follows: front of head less brightly colored, with chevron-shaped callus more evident; third segment of antenna elongate; pro- and mesotibiae without row of teeth; last visible abdominal sternite with midline carina; and pygidium, in male simple, in female with midline carina and depressions on either side, and apex with midline notch same width as ventrally directed teeth.

Length (female lectotype) 17mm; **width** 6.5mm.

Male genitalia (Fig. 20). Parameres not strongly narrowed apically; apex of penis truncate.

VARIATION: Color varies from dark brownish-black to cupreous-brown with the elytral foveae varying from cupreous to greenish-yellow. Males vary from 15.0 to 20.5mm long and from 4.7 to 7.5mm wide; females from 11.5 to 20.5mm long and from 4.5 to 7.5mm wide.

TYPE LOCALITY: TEX., Laredo to Ringgold Barracks (type labelled with a red disk); lectotype female [MCZ, No. 2689].

GEOGRAPHICAL DISTRIBUTION: (From 65 specimens examined) ARIZONA: Patagonia, 24-III-38; San Carlos, 9-VI-63, G. H. Nelson. TEXAS: Brownsville, II-VII, various collectors; San Patricio County, Portland, 5-VI-48, M. A. Cazier; Laredo, 10-X-24; Hidalgo County, 11-IV-63, G. Jackson; Southwest Hidalgo County, 22-VII-46, G. B. Vogt; Bentsen-Rio Grande State Park,

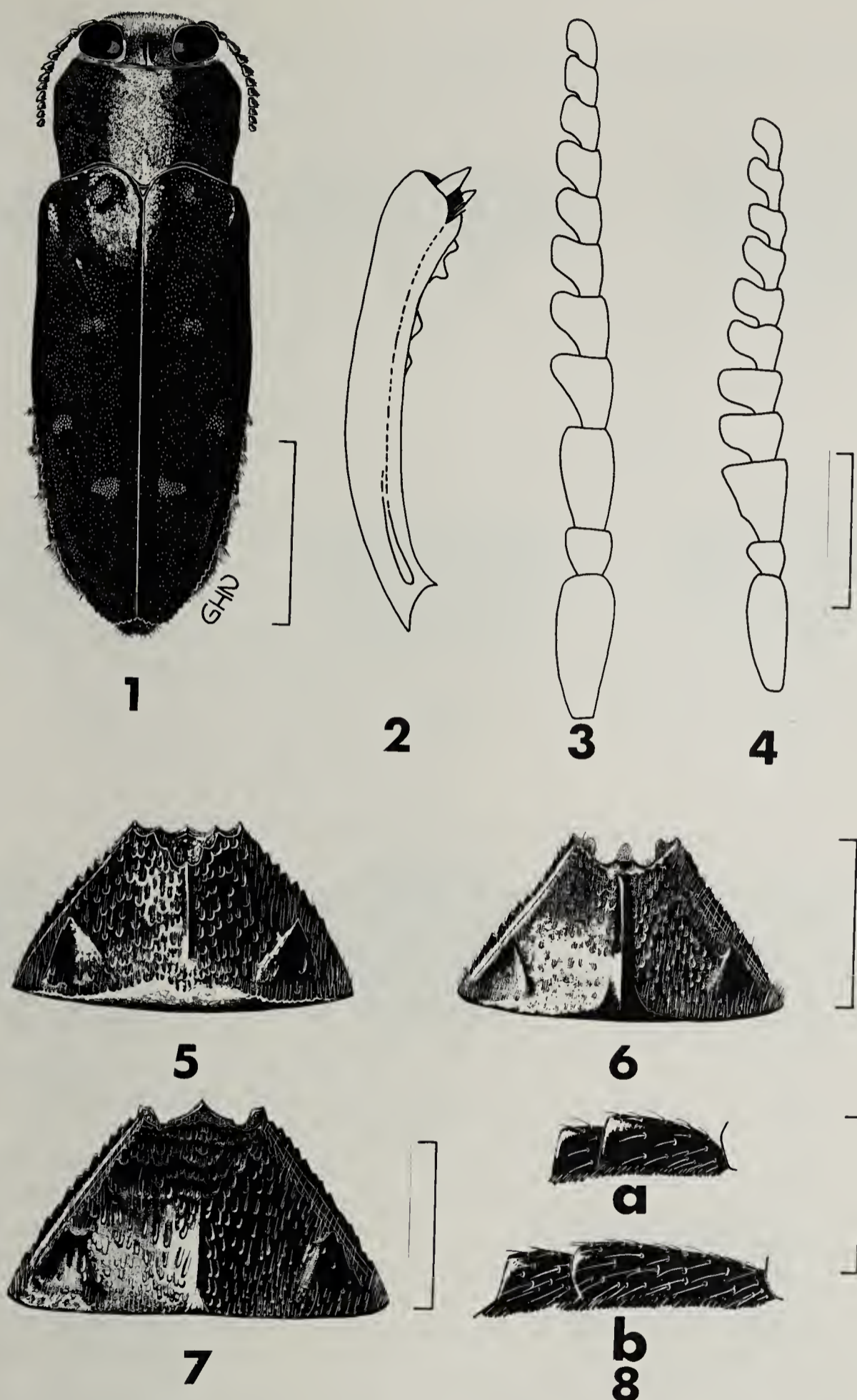


Fig. 1-8: 1) dorsal view of male type, *Chrysobothris knulli* Nelson; 2) protibia of male, *C. paratabalipa* Nelson; 3) antenna of male, *C. paratabalipa* Nelson; 4) antenna of male *C. multistigma* (Mannerheim); 5) last visible abdominal sternite of female, *C. paramodesta* Nelson; 6) last visible abdominal sternite of female, *C. modesta* Waterhouse; 7) last visible abdominal sternite of female, *C. octocola* LeConte; 8) basal 2 segments of metatarsi, (A) *C. brevitarsis* Nelson and (B) *C. atabalipa* Laporte & Gory. (Line = 5 mm for Fig. 1; 1 mm for Fig. 2-4, & 8; and 1.5 mm for Fig. 5-7).

4-VI-54, H. F. Howden; 15 mi NE Rio Grande City, 3-VI-54, H. F. Howden; Lake Corpus Christi State Park, 7-VI-54, H. F. Howden, (19-21)-VI-71, and 8-IV-72, G. H. Nelson. MEXICO: TAMAULIPAS: 20 mi W Antiguo Morelos, VII-54, D. G. Kissinger; 20 mi N Ciudad Victoria, 16-VII-55, D. Giuliani; NUEVO LEON: 5 mi NE Villa Garcia, 18-VII-55, D. Giuliani; Monterrey, 2-V-55, A. Enríquez; 5 mi S Monterrey, (9-27)-VII-63, A. T. & H. F. Howden; COAHUILA: 40 mi S Nueva Rosita, 25-VI-65, G. H. Nelson; 2 mi W San Pedro, 20-VII-55, D. Giuliani; JALISCO: 3 mi N Barra de Navidad, Bahia de Coastecomate, 19-VIII-64, W. L. Nutting & Sons; mountains and canyons north of Ajijic, to 6200 feet, 26-VII to 9-VIII-64, W. L. Nutting & Sons; 25 mi N Guadalajara, 19-VIII-70, M. S. & J. S. Wasbauer; MEXICO: 3 mi N Valle de Bravo, 30-VI-65, G. H. Nelson.

HOST: Most commonly collected on *Acacia farnesiana* (L.) Wildenow in Texas, but collected on *Cercidium floridum* Bentham in Arizona, and on *Acacia constricta* Bentham in Coahuila, Mexico.

COMPARISONS: In the male the triangular third segment of the antenna and the form of the aedeagus, and, in the female the characteristics of the pygidium, show this species to be closely allied with *C. multistigmata* (Mann.) and easily separated from the other species of the group. Besides the key characters that separate *C. basalis* LeC. and *C. multistigmata* (Mann.), the elytral foveae in *C. basalis* tend to be of a more contrasting color to the general color than in *C. multistigmata*.

2. *Chrysobothris multistigmata* (Mannerheim) (Fig. 4, 10, 21)

Colobogaster multistigmata Mannerheim, 1837, Bull. Soc. Nat. Moscou X, 8:82.

DIAGNOSIS: Dark brownish-black above with cupreous tint and foveae of elytra usually same as general color, brighter cupreous below; male with third segment of antenna triangular (Fig. 4), pro- and mesofemora with dense brush on inner margin and apex of penis narrowly rounded (Fig. 21); pygidium of female with strong median carina, deep depression on either side of carina, and ventrally projecting teeth narrower than apical notch (Fig. 10).

MALE LECTOTYPE: **Head.** Front greenish bronze, flattened, densely confluent punctate, densely clothed with semirecumbent white setae and smooth raised areas above antennal sockets, as chevron on front and as grooved longitudinal line on occiput; clypeus angularly emarginate, broadly rounded on each side; antennae greenish bronze proximally, becoming cupreous distally; first segment elongate globose, second short and triangular, third broadly triangular and subequal in length to fourth and fifth combined, antennae strongly narrowed distally (Fig. 4).

Pronotum. Distinctly wider than long; sides slightly sinuate and gradually diverging from base to widest at apical fourth, then obliquely converging to narrowest at anterior angles; anterior margin shallowly arcuately emarginate with weak median lobe; base arcuately emarginate on each side of truncate median lobe; disk convex, glabrous, finely punctate toward middle, punctures becoming confluent and coarse laterally; scutellum acuminate.

Elytra. Slightly wider than pronotum; sides parallel from rounded humeral angles to middle, then arcuately converging to separately rounded

apices; lateral margins strongly serrate posteriorly; disk of elytron glabrous, finely densely punctured, with broad shallow humeral depression and with typical pattern of costae and foveae.

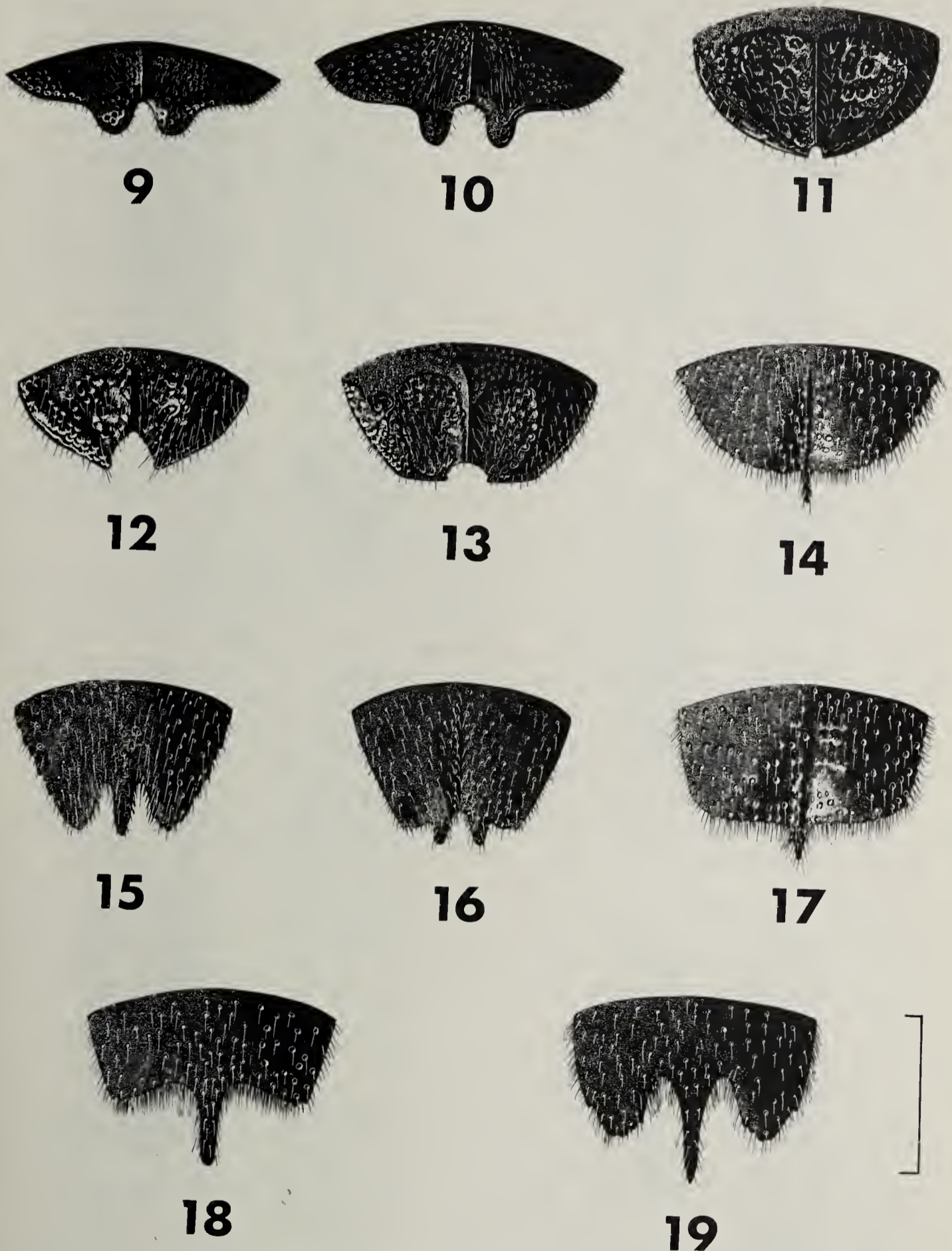


Fig. 9-19. Female pygidia (9-10 posterior view, 11-19 dorsal view): 9) *Chrysobothris basalis* LeConte; 10) *C. multistigmata* (Mannerheim); 11) *C. paramodesta* Nelson; 12) *C. modesta* Waterhouse; 13) *C. octocola* LeConte; 14) *C. vogti* Nelson; 15) *C. explicationis* Nelson; 16) *C. knulli* Nelson; 17) *C. storkani* Obenberger; 18) *C. brevitarsis* Nelson; 19) *C. atabalipa* Laporte & Gory. (Line = 1 mm).

Ventrally. Nearly impunctate medially, punctures becoming coarse and rugose laterally; setae white, semirecumbent and moderately dense laterally throughout, prosternum with setae semierect and longer near medial glabrous area; prosternum with anterior margin feebly broadly lobed, prosternal process with submarginal impressed punctate line; profemur with obtuse tooth dentately margined and with dense brush of setae behind tooth; mesofemur with dense brush of setae on inner margin; metafemur with inferior margin coarsely dentate; pro- and mesotibiae strongly arcuate with row of small teeth on inner margin; metatibia straight without row of teeth; abdominal sternites depressed in midline, posterior margins smooth and purplish-black, lateral angles acutely produced, sternites with purplish callosities laterally; last visible sternite with lateral margins serrate, apex shallowly arcuately emarginate, disk with raised tooth laterally and transverse smooth area at basal margin; pygidium evenly convex with slight median emargination and postero-inferior surface densely punctate and clothed by dense brush of setae.

Male genitalia (Fig. 21). Parameres not strongly narrowed apically; apex of penis narrowly rounded.

Length: 17mm; width: 6mm.

Redescribed from a male specimen (Mannerheim collection, UZMH) which bears 2 labels, 1 with Sommer written on it and the other with Mexico, Oaxaca written on it. Since this specimen matches the original description and is from the type locality I designate it as the lectotype, number 2853.

FEMALE: Differs from male as follows: front of head brassy brown, less densely punctate and less densely clothed with setae; antennae brassy brown, third segment elongate; pro- and mesofemora without dense brush on inner margin; mesotibia feebly arcuate; tibiae without row of small teeth; last visible abdominal sternite angularly emarginate; pygidium with median carina and deep depression on either side, apical margin with median notch and ventrally directed tooth on either side not as broad as notch (Fig. 10).

Length 21.0mm; **width** 7.5mm.

Described from female plesiallotype from MEXICO, Morelia, Yautepec, Canyon de Lobos, 4000 feet, 18-III-59, H. E. Evans [GHN].

VARIATION: The color, usually a dark brownish-black, is sometimes rather cupreous and the median carina of the female pygidium is less pronounced in some from Nayarit, Rosalva. Males vary from 15.5 to 23.0mm long and from 5.0 to 8.0mm wide; females from 15.5 to 21.7mm long and from 5.0 to 8.0mm wide.

GEOGRAPHICAL DISTRIBUTION: (From 142 specimens examined). MEXICO: SINALOA: Morcorito, Crawford; NAYARIT: 15 mi N Tepic, 25-VII-54, M. Cazier, W. Gertsch, Bradts; 18 mi E San Blas, 29-VII-66, G. C. Walters; 12.3 mi NE San Blas, 21-VII-63, R. L. Westcott; near Jesus Maria, Arroya Santiago, 5-VII-55, B. Malkin; 18 mi E San Blas, 27-VII-66, D. S. Verity; JALISCO: Guadalajara, III-23, W. M. Mann; 60 mi S Guadalajara, Highway 15, 8-VIII-65, G. H. Nelson; Chapala, 28-VII-63, R. L. Westcott; 22 mi NW La Piedad, 23-VII-54, E. I. Schlinger; San Juan Lagos, 27-VII-51, P. D. Hurd; MICHOACAN: 5 mi S Tuxpan, 4-VIII-62, D. S. Verity, 21-VII-66, D. S. Verity & G. C. Walters and 7-VIII-65, G. H. Nelson; GUERRERO: Acahuizotla, X, H. H. Smith; Iguala, 31-VIII-64, E. Fisher & D. S. Verity; 5 mi S Iguala, 15-XI-46, E. C. Van Dyke; Mexcala, 18-VII-56, K. Wilson and 29-VI-51, P. D. Hurd; 24 mi N Chilpancingo, Cañon del Zopilote, 11-VII-70, E. Fisher, P. Sullivan; DIS-

TRITO FEDERAL: Temascaltepec, 31, G. B. Hinton; HIDALGO: 5 mi E Jacala, 21-XI-46, E. C. Van Dyke; TAMAULIPAS: Ciudad Victoria, 30-VIII-65, E. M. Fisher; Rosalva, 22-V-52, M. Cazier, W. Gertsch, R. Schrammel; VERACRUZ:

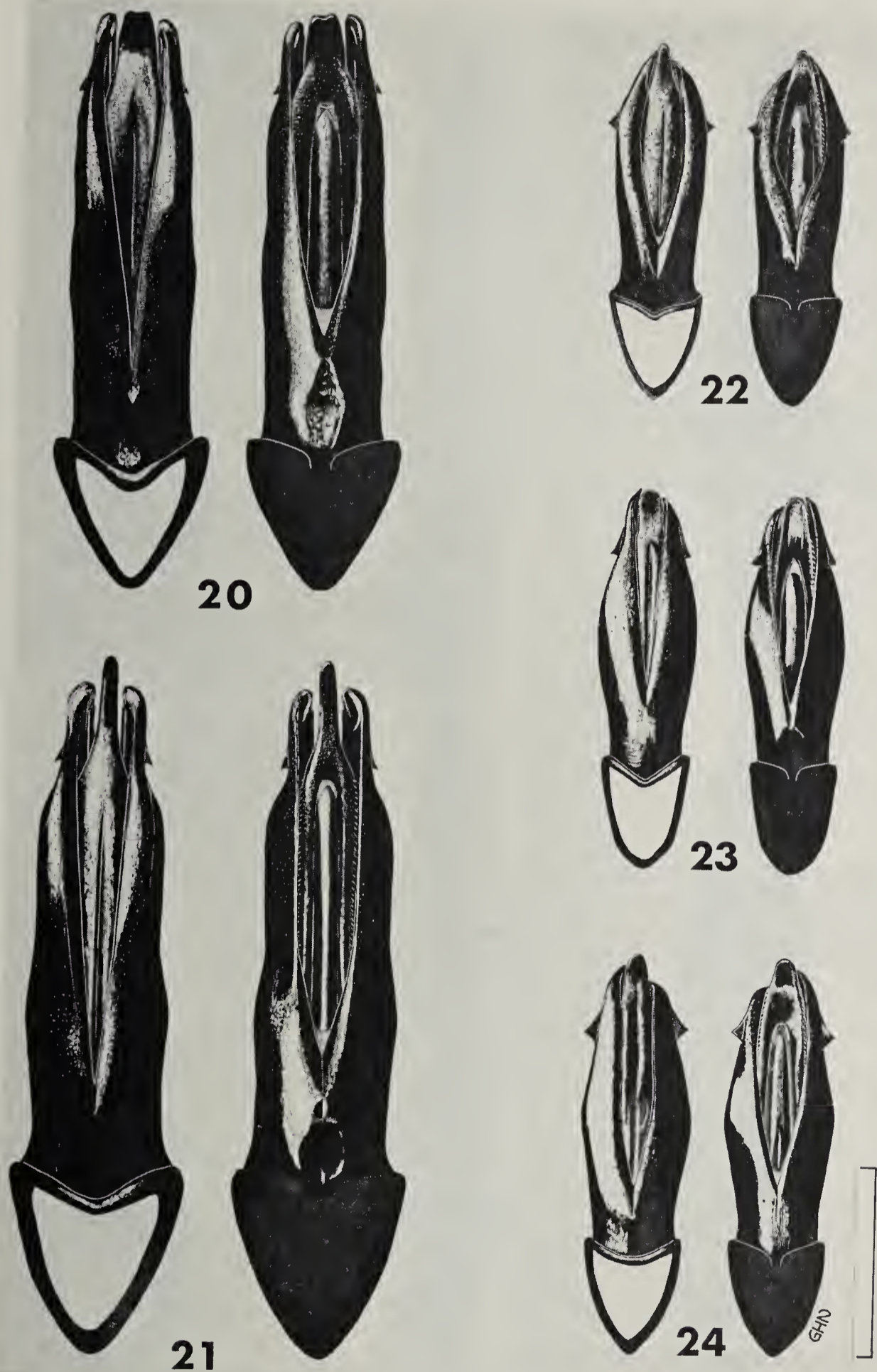


Fig. 20-24. Dorsal and ventral views of male genitalia: 20) *Chrysobothris basalis* LeConte; 21) *C. multistigmata* (Mannerheim); 22) *C. paramodesta* Nelson; 23) *C. modesta* Waterhouse; 24) *C. octocola* LeConte. (Line = 2 mm).

14 mi SE Xalapa, 29-VII to 1-VIII-64, D. S. Verity; 21 mi SW Panucho, 3-VII-64, E. Fisher & D. S. Verity; 15 mi E Cordoba, (12-25)-VII-64, E. Fisher & D. S. Verity; 12 mi E Cordoba, 3-VII-65, G. H. & K. T. Nelson; 6 mi S Tinaja

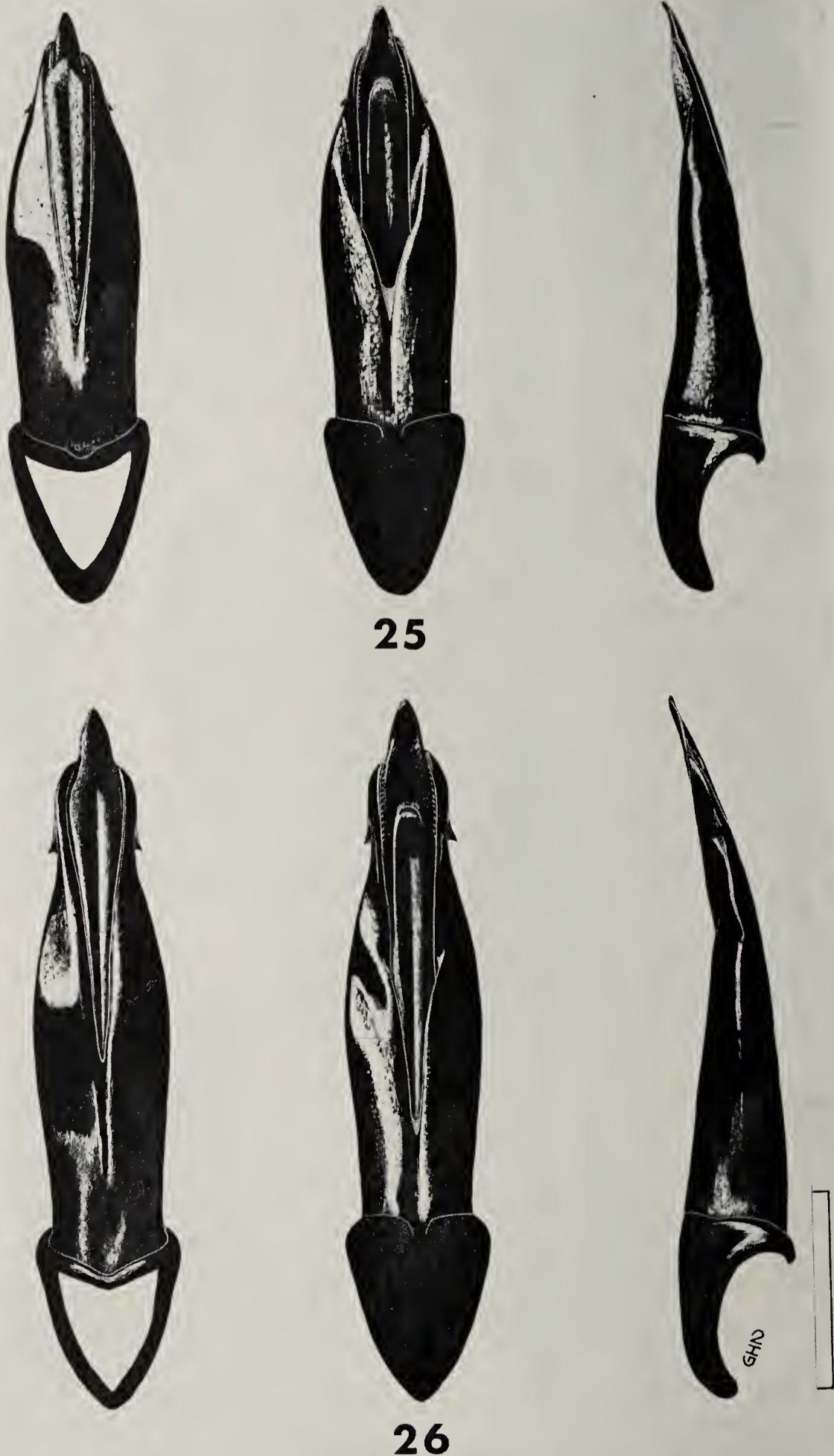


Fig. 25-26. Dorsal, ventral, and lateral views of male genitalia: 25) *Chrysobothris vogti* Nelson; 26) *C. storkani* Obenberger. (Line = 2 mm).

Junction, 26-VI-72, G. H. Nelson; MORELOS: 12 mi S Cuernavaca, 8-VII-62, D. H. Janzen; 15 mi S Cuernavaca, 15-XI-46, E. C. Van Dyke; Yautepec, Canyon de Lobos, 4000 feet, 18-III-59, D. Anderson & H. E. Evans; Morelos; PUEBLA: Atlisco, Hoege; Tehuitzingo, 27-II-53, R. C. Bechtel & E. I. Schlinger;

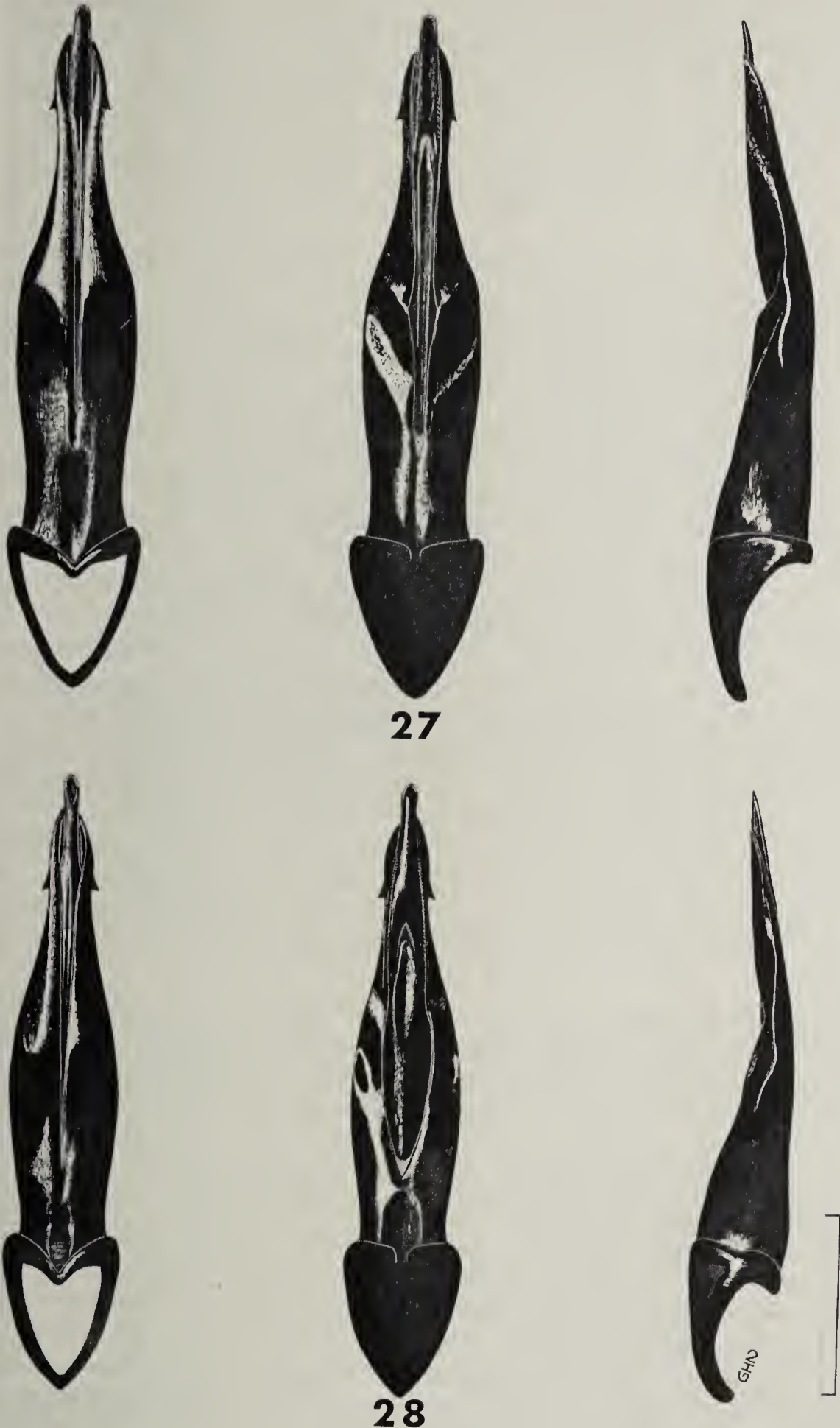


Fig. 27-28. Dorsal, ventral, and lateral views of male genitalia: 27) *Chrysobothris explicationis* Nelson; 28) *C. knulli* Nelson. (Line = 2 mm).

OAXACA: 40 mi W Tehuantepec, 22-VIII-64, E. Fisher & D. S. Verity; Oaxaca, 1912, J. Rickards; Valerio Trujano, 4500 feet, 29-VII-37, M. A. Embury; CHIAPAS: 30 mi S Comitán, 24-VII-63, W. A. Foster; EL SALVADOR: Santa Cruz, Salle.

HOST: Unknown but specimens have been taken on *Mimosa* sp., *Acacia* sp., and *Prosopis juliflora* (Sw.) D.C.

COMPARISONS: Most similar to *C. basalis*, and comparison is made under that species.

3. *Chrysobothris paramodesta* Nelson, **new species** (Figs. 5, 11, 22)

DIAGNOSIS: Cupreous-brown above, shining cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with lateral margins of parameres roundly converging apically and with lateral teeth near widest part (Fig. 22); pygidium of female strongly depressed on either side of strong median carina, with narrow median apical notch (Fig. 11), and last visible abdominal sternite with middle of subapical crest deeply but not strongly notched (Fig. 5).

MALE HOLOTYPE: **Head.** Front and antennae golden-green with cupreous tints especially on clypeus and apical parts of antennal segments, vertex brassy-brown; front flattened, densely confluent punctate, moderately densely clothed with semi-erect white setae not obscuring surface; small callus above each antennal socket, as faint chevron on front and longitudinal grooved area on vertex; clypeus broadly triangularly emarginate and rounded on either side; third segment of antenna elongate, slightly broader apically, segments broadly triangular from fourth and narrowing apically.

Pronotum. Much wider than long; lateral margins slightly sinuately diverging from posterior angles to widest at apical fourth, then obliquely converging to narrowest at anterior angles; anterior margin shallowly arcuately emarginate with faint median lobe; basal margin deeply arcuately emarginate on either side of truncate median lobe; disk evenly convex, glabrous; punctures fine and moderately dense medially, becoming larger and rugose laterally; surface with some irregular smooth areas; scutellum minute, acuminate.

Elytra. Wider than pronotum; lateral margins sinuately parallel from rounded humeri to near middle, then arcuately converging to apex; margins strongly serrate apically; disk glabrous, finely punctate medially, punctures becoming coarse and dense laterally; with typical pattern of costae and foveae.

Ventrally. Finely sparsely punctate medially, more coarsely densely sculptured laterally; moderate semirecumbent white setae laterally and on legs; anterior margin of prosternum with broad median lobe and with some white setae behind lobe and on punctures along lateral margins of prosternal process; profemur with obtuse tooth margined by small teeth; metafemur with row of small teeth along inferior margin; pro- and mesotibiae arcuate, each with several small teeth; metatibia straight, without teeth; abdominal sternites with midline concavity stronger basally, with posterior margins smooth, with purplish tooth-like callosities laterally on each, and with posterior angles of segments acutely produced; last visible abdominal sternite with raised serrate submarginal ridge, with serrate lateral margins and with

apex strongly arcuately emarginate; pygidium convex, depressed with small notch apically, and with submarginal area densely punctate and clothed with white setae.

Male genitalia (Fig. 22). Widest part near apex, then strongly arcuately narrowed to apex, lateral teeth at widest part.

Length 12.0mm; **width** 4.5mm.

FEMALE ALLOTYPE: Differs from male as follows: head with front and antennae aeneo-cupreous and front with large chevron shaped callus; pro- and mesotibiae without teeth; last visible abdominal sternite with median carina and with moderately raised submarginal ridge serrate and notched apically (Fig. 5); pygidium with strong median carina with deep coarsely punctate depression on either side, and with very small median apical notch (Fig. 11).

Length 13.0mm; **width** 5.0mm.

Type material: All type material from MEXICO, collected by E. C. Welling M. unless otherwise indicated. Holotype, male [USNM, No. 72506] and Allotype, female [GHN], YUCATAN: Pisté, 120 km E Mérida, near Chichén-itza, VIII-68; Paratypes: 29 males, 26 females, same data as holotype; 3 males, 2 females, VI-68; 48 males, 31 females, VII-68; 29 males, 37 females, IX-68; 9 males, 7 females, Pisté, Mpo. Tinum, V-68; 1 female, Temax, Gaumer; 1 male, 2 females, QUINTANA ROO: X-cán Nuevo, VI-67; 5 males, 13 females, same place, VII-67. Paratypes deposited in the following collections: AMNH, BMNH, CAS, CNC, CUI, USNM, UCB, WFB, FMB, HH, HFH, GHN, DSV, GCW, RLW.

VARIATION: Males vary from 10.5 to 13.0mm long and from 4.0 to 5.0mm wide; females from 10.2 to 14.5mm long and from 4.0 to 5.7mm wide.

HOST: Unknown.

COMPARISONS: *C. paramodesta*, *C. modesta*, and *C. octocola* form a subgroup and are species of relatively small size. The 3 species are quite similar and *C. paramodesta* is distinguished from the other 2 by the shape of the male genitalia and the smaller apical notch of the female pygidium as indicated in the key.

4. *Chrysobothris modesta* Waterhouse (Fig. 6, 12, 23)

Chrysobothris modesta Waterhouse, 1887, Biol. Centrali Americana, 3(1):46.

DIAGNOSIS: Cupreous-brown above, shining cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres gradually narrowed to apex and with lateral teeth well apical to widest part (Fig. 23); pygidium of female moderately depressed on either side of strong median carina, with wide apical notch (Fig. 12), and last visible abdominal sternite with middle of subapical crest strongly deeply notched (Fig. 6).

MALE LECTOTYPE: Head. Front and antennae aeneo-cupreous with green tints especially along margin of clypeus, vertex brassy-brown; front flat, densely confluent punctate, clothed with semierect white setae not obscuring surface; small oblique callus above each antennal socket, and faint midline groove on vertex; clypeus deeply triangularly emarginate and rounded on either side; antenna with first segment elongate clavate, second short, third elongate, more than twice as long as second and slightly wider apically, segments broadly triangular from fourth and slightly narrowed apicalward.

Pronotum. Distinctly wider than long; lateral margins sinuately diverging from rounded basal angles to widest at apical fourth, then converging to narrowest at anterior angles; anterior margin shallowly arcuately emarginate with faint median lobe; basal margin arcuately emarginate on either side of evident median lobe; disk evenly convex, glabrous; punctures fine and dense medially, becoming larger and rugose laterally; scutellum small, acuminate.

Elytra. Wider than pronotum; lateral margins sinuately parallel from broadly rounded humeri to near middle, then serrate and converging to rounded apex; disk glabrous, finely punctate medially, punctures larger and confluent laterally; pattern of costae and foveae typical.

Ventrally. As in *paramodesta* except pygidium only depressed apically.

Male genitalia (Fig. 23). Widest near middle then tapering to apex; lateral teeth with basal margin at right angles to long axis.

Length 11.5mm; **width** 4.5mm.

FEMALE ALLOLECTOTYPE: Differs from male as follows: head with front and antennae brassy-brown, front with several smooth raised areas, and with setae greatly reduced; pro- and mesotibiae without teeth; last visible abdominal sternite with median carina, and with serrate submarginal ridge strongly and deeply notched apically (Fig. 6); pygidium with strong median carina and with moderately deep punctate depression on either side, and with pronounced median apical notch (Fig. 12).

Length 12.3mm; **width** 5.0mm.

Type material: The original description by Waterhouse (1887) was from 6 specimens. There are now 5 syntypes in the British Museum which were sent to me for examination by Miss C. M. F. von Hayek. I designate as lectotype a male with the genitalia mounted on a card, labelled "syntype" on first label, "Huetamo, Michoacan, Hoege" on second label and hand written on third label "*Chrysobothris modesta* (Type) Waterh." The female allolectotype has the same first and second labels as the lectotype and a third label as follows: "SYNTYPE, *Chrysobothris modesta* Waterh., C. M. F. von Hayek 1973"; 3 paralectotypes, 1 male and 2 females, are labelled: "Tacambaro, Michoacan, Hoege."

VARIATION: Males vary from 9.0 to 14.0mm long and from 3.4 to 5.2mm wide; females from 9.5 to 14.2mm long and from 3.7 to 5.5mm wide.

GEOGRAPHICAL DISTRIBUTION: (From 71 specimens examined, all from MEXICO): MICHOCAN: Huetamo, Hoege, type locality; 22 mi SE Huetamo, 9-VII-70, E. Fisher, P. Sullivan; Tacambaro, Hoege; 12 mi S Nuevo Italia, 21-VIII-54, J. W. MacSwain; Apatzingan, 1200 feet, 1-VIII-40, Hoogstraal, Knight; 5 mi E Apatzingan, 19-VII-54, Linsley, MacSwain, Smith; 12 mi E Apatzingan, 20-VIII-54, Linsley, MacSwain, Smith; 13 mi W Cuatro Caminos, 13-VII-72, 10 mi W Cuatro Caminos, 12-VII-72, and 9 mi S Cuatro Caminos, (11-13)-VII-72, all G. H. Nelson; GUERRERO: 5 mi S Iguala, 15-XI-46, E. C. Van Dyke; Canyon del Zopilote, 24 mi N Chilpancingo, 11-VII-70, E. Fisher, P. Sullivan; 3 mi N Chilpancingo, 18-XI-46, E. C. Van Dyke; 15 mi S Cuernavaca, 15-XI-46, E. C. Van Dyke; 23 mi W Arcelia, 10-VII-70, E. Fisher, P. Sullivan; 17 mi N Mexicala, 23-VIII-58, E. L. Mockford; 6 mi S Rio Mexcala, Highway 95, (5-6)-VIII-65, G. H. Nelson; MORELOS: Alpuyeca, 27-VI-51, P. D. Hurd; OAXACA: Valerio Trujano, 4500 feet, (28-29)-VII-37, M. A. Embury; 18 mi E La Ventosa Junction, Highway 190, 21-VII-65, 3 mi W Tehuantepec, 9-VII to 2-VIII-65, 7 mi W Tehuantepec, 2-VII-72, and near Tecomavaca, 500 meters,

28-VI-72, all G. H. Nelson; COLIMA, 10 mi W Colima, 1-VIII-54, M. Cazier, W. Gertsch, Bradts.

HOST: Unknown.

COMPARISONS: This species is similar to *C. paramodesta*, under which it is compared, and *C. octocola*. From the latter *C. modesta* differs in the elytral foveae usually being smaller and more similar in color to the body and in having the clypeus deeply triangularly emarginate which is usually less deeply emarginate in *C. octocola*. Males differ in the characteristics of the aedeagus and females in the excavation of the last visible abdominal sternite, both as indicated in the key.

5. *Chrysobothris octocola* LeConte
(Fig. 7, 13, 24)

Chrysobothris octocola LeConte, 1858, Acad. Nat. Sci. Philadelphia Proc. [10]:67.

DIAGNOSIS: Cupreous-brown above, shining cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres gradually narrowed to apex, and with lateral teeth triangular, strong and well apical to widest part (Fig. 24); female pygidium with median and lateral carinae, with wide apical notch (Fig. 13), and last visible abdominal sternite usually projecting at middle of subapical crest (Fig. 7).

This species is described by Fisher (1942). Female differs from male as follows: front of head aeneous instead of golden-green, frontal callus more evident; pro- and mesotibiae without row of small teeth; last visible abdominal sternite with midline carina and with midline projection in apical emargination; pygidium in male simple, in female with midline and lesser lateral carinae with depression between, and apex with midline notch.

Length (female type) 17.0mm; **width** 6.5mm.

Male genitalia (Fig. 24). Widest at middle then tapering weakly to apex; lateral teeth pyramidal in shape.

VARIATION: This widespread species varies in general color from aeneo- and purpureous-black to cupreous with the elytral foveae from green to bright cupreous, usually contrasting distinctly with the body color. The general sculpture of the body is rather consistent but the apical notch of the pygidium in the female varies from semicircular to broadly transverse in shape and the subapical crest of the last visible abdominal sternite in the female varies from hardly projecting to a sharply projecting tooth. Males vary from 10.2 to 14.0mm long and from 4.0 to 5.2mm wide; females from 11.0 to 17.0mm long and from 4.0 to 6.2mm wide.

TYPE LOCALITY: ARIZONA, Colorado River near Gila, female type [MCZ, No. 2688].

GEOGRAPHICAL DISTRIBUTION: (From 316 specimens examined) CALIFORNIA: Many localities from Panamint and Death Valleys southward through San Bernardino, Los Angeles, San Diego, Riverside, and Imperial Counties. NEVADA: Glendale, 25-V-35; Clark County, Mount Charleston, Kyle Canyon, 23-V-40, Reeves, Cazier, Ting. ARIZONA: many localities. NEW MEXICO: Silver City, 10-VII-35, R. T. Kellogg. TEXAS: many localities. MEXICO: BAJA CALIFORNIA: many localities throughout. SONORA: 12 mi N Hermosillo, 14-VIII-65, G. H. Nelson; San Bernardo, Rio Mayo, 15-X-34, H. S.

Gentry. CHIHUAHUA: Samalayuca, 24-VI-47, Gertsch. TAMAULIPAS: Abasola, 17-V-52, Cazier, Gertsch, and Schrammel; 15 mi N Ciudad Mante, 14-VII-55, D. Giuliani.

HOSTS: Reared from *Prosopis juliflora* (Swartz) Candolle and *Cercidium floridum* Benth from various parts of its range. It has also been collected on the following plants: *Acacia greggii* Gray, *Atriplex lentiformis* (Torrey) Watson, and *Pluchea sericea* (Nuttall) Coville.

COMPARISONS: Most similar to *C. modesta* and *C. paramodesta* under which it is compared.

6. *Chrysobothris vogti* Nelson, **new species**
(Fig. 14, 25)

DIAGNOSIS: Cupreous or brownish-black above, cupreo-aeneous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres gradually tapering to apex without apical prolongation and dorsum of parameres convex without apparent median channel (Fig. 25); pygidium of female with lateral margins rounded from base to truncate apex, apex with slender ventrally projecting midline tooth (Fig. 14).

MALE HOLOTYPE: **Head.** Front bronzy gold, flattened, densely confluent punctate, moderately clothed with semirecumbent white setae and with small raised smooth area above antennal sockets; vertex darker, glabrous with midline groove; clypeus triangularly emarginate; antennae as body color with third segment elongate, segments triangular from fourth and narrowing apically.

Pronotum. Distinctly wider than long; lateral margins feebly sinuate from rounded basal angles to anterior fourth, then strongly converging to narrowest at anterior angles; disk convex, glabrous, finely punctate medially, punctures becoming larger and confluent laterally; scutellum small, acuminate.

Elytra. Wider than pronotum, lateral margins parallel from rounded humeri to middle, then converging gradually to strongly rounded apices, margins serrate posteriorly; disk glabrous, punctures fine medially becoming larger and dense laterally; with typical pattern of costae and foveae.

Ventrally. Sparsely finely punctate medially, becoming more coarsely sculptured and chagreened laterally; sparsely clothed with semirecumbent white setae (which are matted and rubbed in type); prosternum with anterior margin feebly, broadly lobed; prosternal process impunctate medially, with rows of numerous fine punctures parallel to lateral margin; profemur with dentately margined obtuse tooth, without dense brush; mesofemur without but metafemur with row of coarse teeth; protibia strongly arcuate, mesotibia slightly so, both with row of small teeth; metatibia straight, without teeth; abdominal sternites flattened along midline, posterior margins smooth, lateral angles acutely produced; sternites with callosities laterally; last visible sternite with lateral margin serrate, apex arcuately emarginate, disk with raised tooth laterally; pygidium convex, slightly depressed apically with serrate margin and inferior marginal area densely clothed with punctures and setae.

Male genitalia (Fig. 25). Parameres tapering gradually to apex, and dorsum convex without apparent median channel.

Length 16.5mm; **width** 6.0mm.

FEMALE ALLOTYPE: Differs from male as follows: head with front aeneous and with chevron shaped callus; protibia arcuate, meso- and metatibiae straight, all without row of small teeth; last visible abdominal sternite with midline carina, apex arcuately emarginate with median tooth; pygidium with midline groove becoming deeper apically and with lateral margins rounded from base to truncated serrate apex, apex with slender ventrally projecting midline tooth (Fig. 14).

Length 16.5mm; width 6.0mm.

Type material: The male holotype [USNM, No. 72502] and female allotype [BMNH] from MEXICO, N. Yucatan, Temax, Gaumer. Paratypes: 1 male, MEXICO, Quintana Roo, X-cán Nuevo, VI-67, E. C. Welling M.; 2 males, 5 females, same place, VII-67, E. C. Welling M. Paratypes are deposited in the following collections: GHN, GCW, and SGW.

VARIATION: The type series is quite uniform in appearance. Males and females vary from 15.5 to 17.0mm long and from 5.5 to 6.0mm wide.

HOST: Unknown.

COMPARISONS: The elongate third antennal segment, the shape of the male aedeagus, and the shape of the female pygidium will serve to distinguish *C. vogti* from its relatives. It is most similar to *C. storkani* and differences are mentioned under that species.

7. *Chrysobothris storkani* Obenberger (Fig. 17, 26)

Chrysobothris storkani Obenberger, 1940, Sbornik Ent. Odd. Nar. Mus. Praha, 18:92.

DIAGNOSIS: Cupreous-brown above, more brilliantly cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin and aedeagus with apical prolongation of parameres only moderately narrowed (Fig. 26); pygidium of female with lateral margins parallel from base to rounded posterior angles and with median apical tooth without notch on either side (Fig. 17).

Original description: "Corporis forma et aspectu primo illae *Chr. multistigmosae* Mann. simillima, eadem forma elongata, eodem colore, eadem macularum elytrorum dispositione, sed ab hac specie, uti sequitur, divergens: maculis elytrorum maioribus et magis cuprascentibus, rotundatis. Fronte in mare multo densius sculpta, granulosa, laetius cuprescente, reliefo angulari minus conspicuo, vertice eadem forma, sed fortius punctato. Epistomate angulose, in angulo obtuso distincto emarginato (apud *multistigmosam* subarcuatim emarginato); antennarum articulo tertio brevior, illo secundo solum duplo longiore (apud *multistigmosam* triplo longiore); thorace antice distincte bisinuatim, (apud *multistigmosam* fere simpliciter) emarginato, thorace brevior, angulis anticis minus productis, margine laterali solum in tertia parte media parallelo, in tertia parte basali subanguloso atque versus, basim oblique, leviter, distincte attenuato, thoracis sculptura simili, sed lobo antecutellari paullo latius rotundato. Elytris paullo brevioribus, carina secunda (a sutura) magis sinuata, intervallis multo sparsius, fortius, distincte strigose punctatis. Tarsorum posteriorum articulo basali distincte brevior. Tibiis anticis maris angustioribus, curvatis, in parte interna granulis distinctis subdentiformibus parvis 6-7 munita, granulis his in mare *Chr. multistigmosae* totaliter absentibus. Corpore subtus cupreo, sternitis concoloribus, reliephis lateralibus similibus, sternito anali simili, sed brevior, lateribus fortius serrulatis, apice angustius et profundius in mare emarginato. Sternito anali feminae uti in *multistigmosa* carinato, sed brevior et postice latius emar-

ginato. Scutello in sexu utroque minore, thoracis disco saepe longitudinaliter subdepresso”.

Male genitalia (Fig. 26). Lateral margins of parameres moderately narrowed toward apex, dorsally with midline sulcus; penis broad, bluntly acute at apex.

Length (lectotype male) 17.0mm; **width** 6.0mm.

FEMALE: Differs from male as follows: pro- and mesotibiae without row of teeth; last visible abdominal sternite has midline carina; margins of pygidium rounded from base in male with slight midline notch apically while in female they are parallel at sides and rounded to truncate apex with ventrally directed midline tooth (Fig. 17).

VARIATION: Some specimens are less brightly cupreous than usual, otherwise fairly uniform. Males vary from 15.5 to 19.5mm long and from 5.5 to 6.8mm wide; females from 14.5 to 19.0mm long and from 5.5 to 7.0mm wide.

TYPE LOCALITY: MEXICO, VERACRUZ, Cordoba, 21-XI-27, (cited in error as June in original description) (Storkan, collector) [NMP].

GEOGRAPHICAL DISTRIBUTION: (From 26 specimens examined) MEXICO: OAXACA: Temascal, 26-IX and 24-XI-63, D. H. Janzen; 4 mi E Temascal, 26-IX to 24-XI-63 and 6-I-64, D. H. Janzen; VERACRUZ: Crawford; Cordoba, 10-V-08, Fred K. Knab; 10 mi N Orizaba, 17-XI-63; Cotaxtla Experiment Station, 27-VI to 15-VIII-62, all by D. H. Janzen; Cordoba, Salle; Veracruz, 27-VII-64, E. Fisher and D. S. Verity; Almolonga, Hoege; Zempuala, 11-VIII-63, M. E. Pendleton; SAN LUIS POTOSI: Valles, 13-X-1894.

HOST: Collected on *Acacia cornigera* Willd.

COMPARISONS: This species is more shining cupreous than its relatives and the shape of the male genitalia is distinctive. The female pygidium with its apical tooth without a notch on either side will distinguish *C. storkani* Obenb. from all except *C. vogti*, however the lateral margin is more parallel from base to rounded posterior angles than in *C. vogti*.

8. *Chrysobothris explicationis* Nelson, **new species** (Fig. 15, 27)

DIAGNOSIS: Cupreous-brown above, shining aeneo-cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres strongly but gradually narrowed to elongate apex and when viewed from side strongly angulate below at middle (Fig. 27); pygidium of female with median apical tooth projecting but little beyond lateral lobes (Fig. 15).

MALE HOLOTYPE: **Head**. Front and antennae bronzy-green, vertex aeneous; front flattened, densely confluent punctate, densely clothed with semierect white setae not obscuring surface; small transverse callus above antennal socket, chevron on front, and longitudinal grooved area on vertex; clypeus triangularly emarginate, rounded on either side; third segment of antenna elongate, segments triangular and narrowing from fourth apically.

Pronotum. Wider than long; lateral margins sinuate from acute basal angle to anterior fourth, then strongly converging to narrowest at anterior angles; anterior margin arcuately emarginate with faint median lobe; basal margin deeply arcuately emarginate on either side of median truncate lobe; disk evenly convex, glabrous; punctures fine and only moderately dense

medially, becoming larger and rugosely punctate laterally; scutellum small, blue, and acuminate.

Elytra. Wider than pronotum; lateral margins parallel from obliquely rounded humeri to near middle, then gradually narrowed to separately rounded apices; marginal serrations beginning before third fovea, becoming larger apically; disk glabrous, punctures fine and moderately dense medially, larger and more dense laterally; with typical pattern of costae and foveae.

Ventrally. Finely sparsely punctate medially, more coarsely sculptured laterally; semirecumbent white setae laterally and on legs; anterior margin of prosternum with feeble median lobe and with dense semierect white setae anteriorly, along punctate lateral margin of prosternal process and extending onto profemur and base of mesofemur; profemur with dentate obtuse tooth; meso- and metafemora with row of teeth; protibia moderately arcuate, mesotibia straight, both with row of small teeth; metatibia straight, without row of teeth; abdominal sternites feebly concave along midline, each with raised dark callosity near lateral margin, callosity acutely tooth-like on last segment; posterior angles of each segment acutely produced; last visible abdominal sternite finely serrate along lateral margin, apex arcuately emarginate; pygidium convex, depressed apically at midline, and with area under margin densely punctured and densely clothed by white setae.

Male genitalia (Fig. 27). Tapering to long slender apex; strongly angulate below at middle when viewed from side.

Length 19.0mm; **width** 6.3mm.

FEMALE ALLOTYPE: Differs from male as follows: front of head and antennae aeneo-brown; front with callosities more evident; ventrally with setae less dense on prosternum and femora; pro- and mesotibiae without teeth; last visible abdominal sternite with midline carina, with strong serrate subapical margin, and apical margin with small arcuate emargination; apex of pygidium with slender median tooth projecting but little beyond produced posterolateral angles (Fig. 15).

Length 19.0mm; **width** 6.5mm.

Type material: All from MEXICO. Holotype, male [CAS, Department of Entomology] from SINALOA, 2.5 mi N Mazatlan, 12-VIII-70, M. Wasbauer. Allotype, female [GHN] from SINALOA, 5 mi N Mazatlan, 19-VII-72, G. H. Nelson. Paratypes: 1 male, 1 female, same data as allotype; 1 female, same place, 10-VIII-65, G. H. Nelson; 3 males, 3 females, same place, 28-VII-66, G. C. Walters & D. S. Verity; 4 females, same place, 22-VII-72, J. & M. A. Chemsak, A. & M. Michelbacher; 1 female, same place and collectors, 31-VII-72; 2 females, same place as holotype, (10-11)-VIII-70, J. A. Chemsak; 1 female, Mazatlan, 15-IX-18; 1 male, 10 km S Mazatlan, 9-VII-63, Eric Fisher; 5 females, 9 mi N Mazatlan, (25-28)-VII-72, J. & M. A. Chemsak, A. & M. Michelbacher; 3 males, 2 females, 3 mi E Villa Union, 24-VII-72, same collectors; 1 female, 10 mi N Escuinapa, 27-VIII-62, D. S. Verity; 1 female, NAYARIT: 18 mi E San Blas, 27-VII-66, D. S. Verity. Paratypes are deposited in the following collections: CAS, UCB, GHN, DSV, and GCW.

VARIATION: Fairly uniform in general appearance. Males vary from 18.0 to 19.5mm long and from 6.0 to 6.5 mm wide; females from 16.5 to 19.0mm long and from 5.5 to 6.5mm wide.

HOST: Collected on *Acacia sp.* and *Mimosa sp.*

COMPARISONS: Similar to *C. knulli* but differs as indicated in the key. Females are difficult to distinguish from *C. atabalipa* and *C. paratabalipa*,

but the median apical tooth of the pygidium projects well beyond the lateral lobes in the latter 2 and but little in *C. explicationis*.

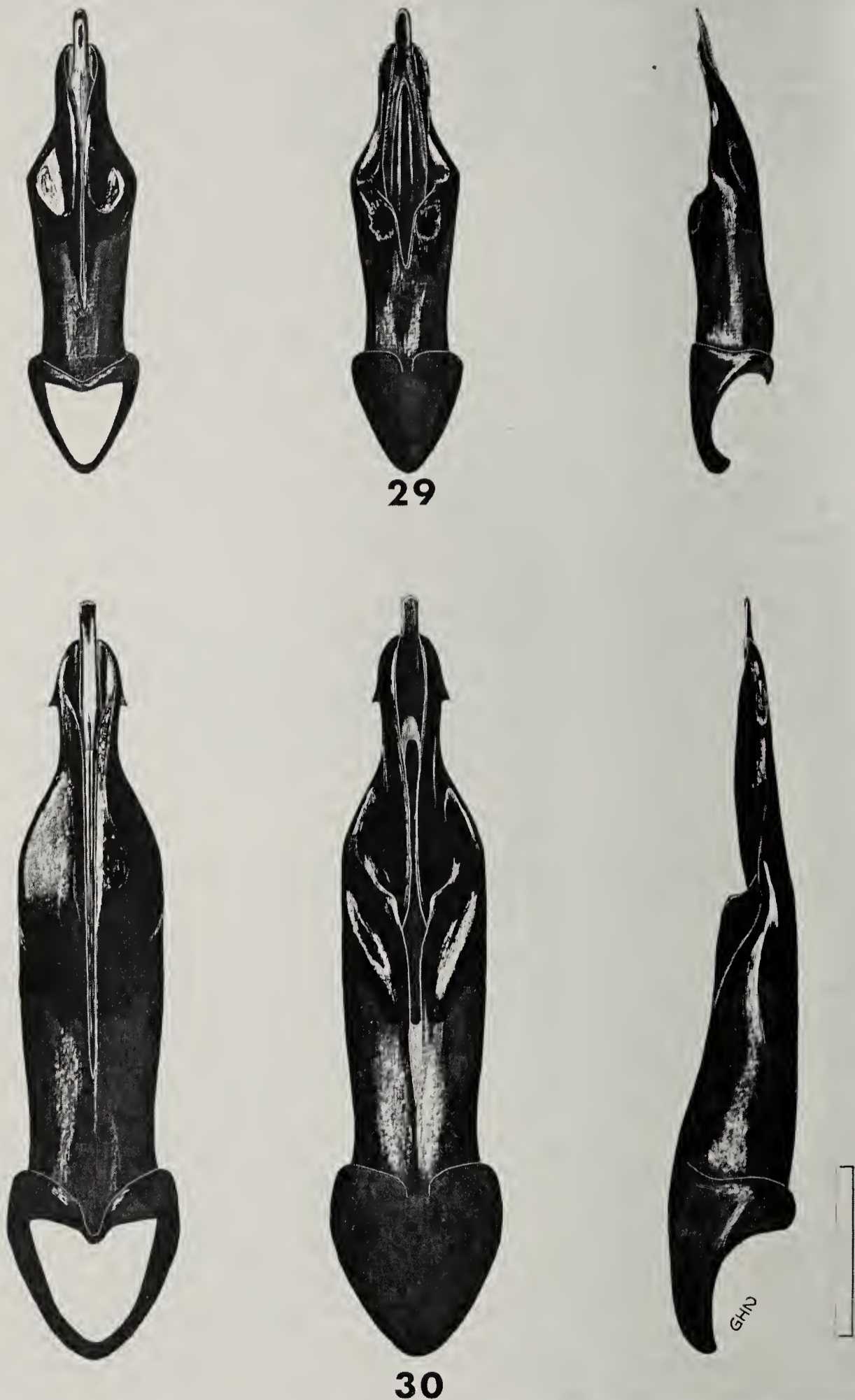


Fig. 29-30. Dorsal, ventral, and lateral views of male genitalia: 29) *Chrysobothris brevitarsis* Nelson; 30) *C. verityi* Nelson. (Line = 2 mm).

9. *Chrysobothris knulli* Nelson, **new species**
(Fig. 1, 16, 28)

Chrysobothris multistigmata Knull (not Mannerheim), 1947, Ent. News, 58(8):211.

DIAGNOSIS: Cupreous-brown above, shining aeneo-cupreous below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres gradually but strongly narrowed to elongate apex and when viewed from side weakly angulate below at middle (Fig. 28); pygidium of female without carina but with median apical notch and posteriorly projecting tooth on either side (Fig. 16).

MALE HOLOTYPE: Head. Front aeneous with green on margins of clypeus, eyes, and antennal sockets, vertex darker; rest of head as in *C. explicationis*.

Pronotum, elytra and ventrally as in *C. explicationis* except color a darker brown and elytral foveae smaller than in that species.

Male genitalia (Fig. 28). Gradually tapering to long slender apex; weakly angulate below at middle when viewed from side.

Length 17.5mm; **width** 6.0mm.

FEMALE ALLOTYPE: Differs from male as follows: front of head darker aeneo-cupreous, callosities more evident; ventrally with setae less dense anteriorly; pro- and mesotibiae without row of teeth; last visible abdominal sternite with median carina, and apical margin with a small arcuate emargination; apex of pygidium with small median notch and posteriorly projecting tooth on either side (Fig. 16).

Length 18.5mm; **width** 6.5mm.

Type material: Holotype, male [USNM, No. 72503] from ARIZONA, Cochise Co., 2 mi E Portal, 15-VII-69, G. H. Nelson. Allotype, female [GHN], same data as holotype. Paratypes, ARIZONA: 5 males, 6 females from type locality, (14-27)-VII-69, G. H. Nelson; 1 female, Cochise Co., Dragoon, 4-VII-73, J. Wappes; 1 male, 1 female, Wickenburg, 20-VIII-38, D. J. & J. N. Knull; 1 female, Baboquivari Mountains, 1-IX-38, D. J. & J. N. Knull; 1 female, Congress Junction, 7-VII, D. J. & J. N. Knull; 1 female, near Roosevelt Lake, 29-IV-47, H. & M. Townes; 1 male, Oracle, 15-VI-03, Oslar; 1 female, Tucson, (12-14)-VIII, Wickham; 1 male, Tucson, 6-V-53, G. M. Bradt; 1 male, Tucson, 5-IX-49, G. M. Bradt; 1 female, Cochise Co., SE end of Whetstone Mountains, Dry Canyon Sands Ranch, 10-VIII-52, H. B. Leech & J. W. Green; 1 female, San Carlos, Gila River Valley, IX, D. K. Duncan; 1 female, Pima County, Canoa Ranch, 19-VIII-60, D. E. Rich; 1 male, NEW MEXICO: Hidalgo County, 19 mi N Rodeo, Granite Gap, 15-VIII-65, K. W. Brown. MEXICO: SONORA: 5 males, 10 females, 2 mi E Alamos, 22-VIII-59, R. L. Westcott; 10 males, 2 females, 10 mi W Alamos, 26-XII-72, D. S. Verity; 1 female, San Bernardo, Rio Mayo, 16-VIII-35 and 1 male, 1 female, 15-X-34, all by H. S. Gentry; 2 males, Sierra de Alomas, 16-I-68, V. Roth; 1 female, Minas Nuevas, 7-VIII-52, C. & P. Vaurie; CHIHUAHUA: 1 female, west of Chinipas, 26-I-68, V. Roth; SINALOA: 1 male, Los Mochis, 17-VI-24, A. H. Amis; 1 male, Culican, 22-VIII-60, D. S. Verity; 2 males, 1 female, 20 mi S Culican, 22-VII-65, D. S. Verity; 1 female, 7 mi S Guamuchil, 29-XII-63, D. S. Verity; 1 male, 4 mi S Guamuchil, 10-IX-64, E. Fisher & D. S. Verity. Paratypes are deposited in the following collections: AMNH, CAS, USNM, WFB, FMB, JNK, GHN, DSV, JW, and RLW.

VARIATION: Fairly uniform in appearance. Males vary from 16.5 to 19.5mm long and from 5.7 to 6.5mm wide; females from 14.5 to 19.0mm long and from 5.0 to 7.0mm wide.

HOST: Collected on limbs of *Acacia constricta* Benth. at the type locality and on *Acacia sp.* in New Mexico.

COMPARISONS: Differences between this species and the similar *C. explicationis* are indicated in the key. Male genitalia and the female pygidium with the small apical median notch with a posteriorly projecting tooth on either side will serve to distinguish this species from others in the group.

It is named in honor of Professor J. N. Knull who has contributed much to the knowledge of the Buprestidae.

10. *Chrysobothris brevitarsis* Nelson, **new species**
(Fig. 8a, 18, 29)

DIAGNOSIS: Cupreous-brown above, shining aeneo-cupreous below; first segment of metatarsus less than 2.5 times as long as high (Fig. 8a); male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres strongly angulate at sides and abruptly narrowed to moderately elongate apical part, without lateral tooth (Fig. 29); pygidium of female with apical median tooth strongly projecting beyond only moderately produced lateral lobes (Fig. 18).

MALE HOLOTYPE: **Head.** Front and vertex brassy-gold with green on margin of clypeus, antennal sockets and eyes; antenna cupreous becoming darker apically and with green at base of proximal segments; front flattened, densely confluent punctate, white semierect setae fairly dense but not obscuring surface; weak callus above antennal socket and median grooved smooth line on vertex; clypeus triangularly emarginate; third segment of antenna elongate, segments triangular and narrowing from fourth apically.

Pronotum and **elytra** essentially as in *C. explicationis* except marginal serrations of elytra begin apical to third discal fovea.

Ventrally. Shining aeneo-cupreous with green tints; finely sparsely punctate medially, more coarsely sculptured laterally; semirecumbent white setae laterally and on legs; anterior margin of prosternum with median lobe, white setae rather sparse medially, inconspicuous along lateral margins of prosternal process, and not dense on femora; profemur with serrately margined obtuse tooth; meso- and metafemora with row of teeth; protibia arcuate, mesotibia weakly so, both with row of small teeth; metatibia straight, without row of teeth; first segment of metatarsus less than 2.5 times as long as high (Fig. 8a); abdominal sternites feebly concave along midline, each with raised dark callus near lateral margin, callus acutely tooth-like on last segment; posterior angles of each segment acutely produced; last visible sternite finely serrate along lateral margin, apex arcuately emarginate; pygidium convex, depressed apically at midline, and with densely punctured area under margin densely clothed by white setae.

Male genitalia (Fig. 29). Sides of parameres angulate and abruptly tapering to short moderately slender apex, without lateral teeth; strongly angulate below when viewed from side.

Length 14.5mm; **width** 5.0mm.

FEMALE ALLOTYPE: Differs from male as follows: front of head and antennae aeneo-brown; front with distinct chevron-shaped callus; pro- and mesotibiae without row of teeth; last visible abdominal sternite with midline

carina and apex with narrow deep emargination; apex of pygidium with long slender median tooth and only slightly produced lateral angles (Fig. 18).

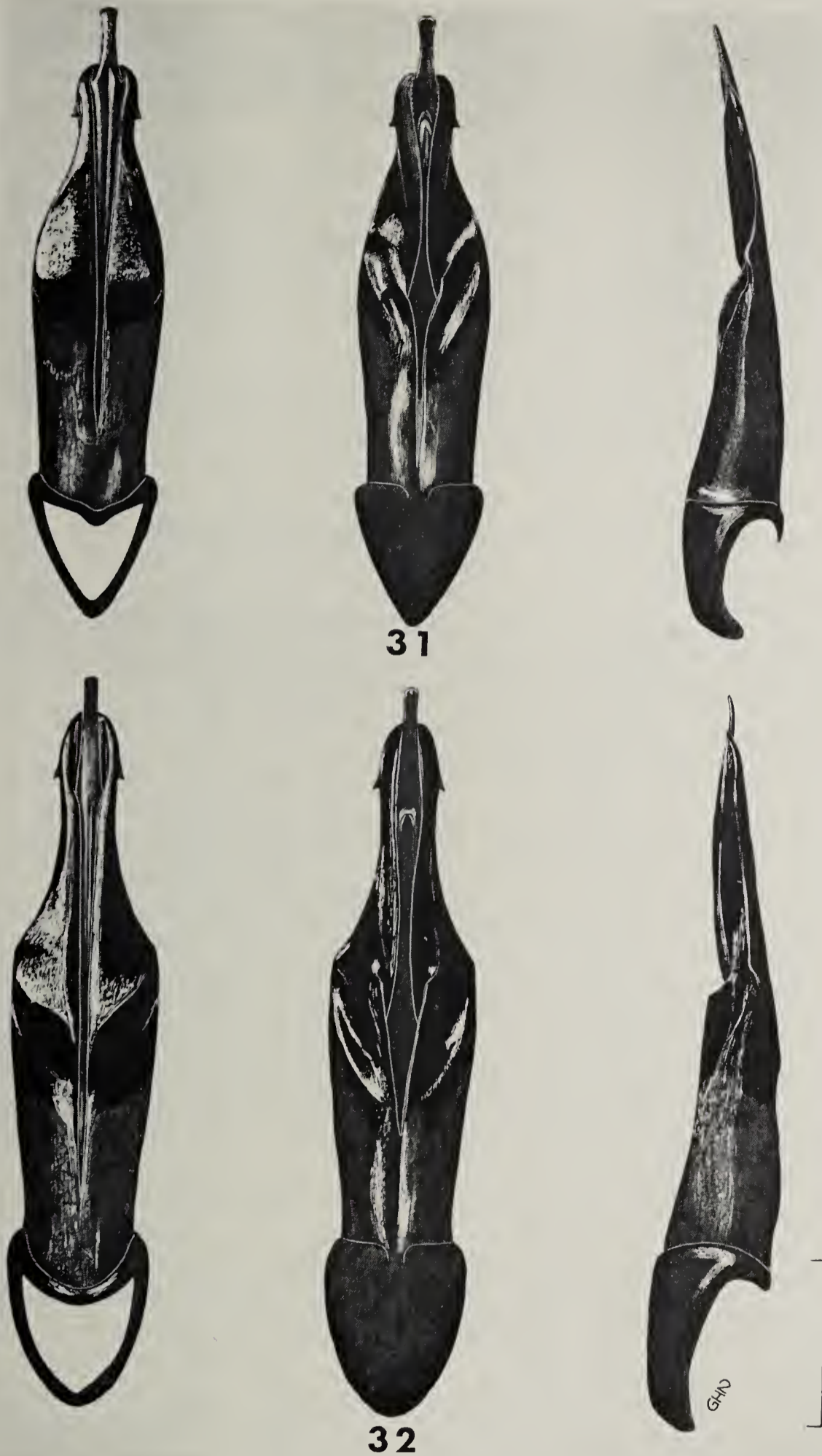


Fig. 31-32. Dorsal, ventral, and lateral views of male genitalia: 31) *Chrysobothris atabalipa* Laporte & Gory; 32) *C. paratabalipa* Nelson. (Line = 2 mm).

Length 15.5mm; **width** 5.5mm.

Type material: Holotype, male [USNM, No. 72504] from MEXICO, OAXACA, 3 mi W Tehuantepec, 19-VII-65, G. H. Nelson. Allotype, female [GHN], same locality as holotype, 2-VIII-65, G. H. Nelson. Paratypes: 1 male, same data as holotype; 1 female, OAXACA, 15 mi N La Ventosa Junction, Highway 185, 8-VII-65, G. H. Nelson; 1 male, NICARAGUA, Managua, 29-VI-63, L. J. Bottimer. Paratypes are deposited in the following collections: CNC, and GHN.

VARIATION: The 2 male paratypes have a faint indication of a chevron on the front, and the male from Nicaragua lacks the green areas of the head and antennae. Males vary from 14.5 to 16.5mm long and from 5.0 to 5.8mm wide; females from 15.5 to 16.0mm long and from 5.5 to 5.8mm wide.

HOST: Holotype and allotype collected on *Acacia pennatula* (S. & C.) Bentham.

COMPARISONS: Appears most similar to small specimens of *C. atabalipa*, but the short first metatarsal segment of *C. brevitarsis* is distinctive as is the shape of the male genitalia and the female pygidium.

11. *Chrysobothris verityi* Nelson, **new species** (Fig. 30)

DIAGNOSIS: Blue with aeneous tint above and below; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres abruptly constricted to narrowed apex (Fig. 30); pygidium of female with median apical tooth strongly projecting beyond rather strongly produced lateral lobes.

MALE HOLOTYPE: Head. Front vivid golden-green above becoming cupreous below and on antennae, blue on vertex; front flattened, densely confluent punctate, clothed with short, moderately dense, semierect white setae; faint thin chevron on front and longitudinal smooth area with midline groove on vertex; clypeus triangularly emarginate; third segment of antenna elongate, segments triangular and narrowing from fourth segment apically.

Pronotum. Wider than long; lateral margins sinuately diverging from roundly acute posterior angles to widest at anterior fourth, then converging sharply to narrowest at anterior angles; anterior margin arcuately emarginate with median lobe; basal margin arcuately emarginate on either side of truncate median lobe; disk evenly convex, glabrous; finely punctate medially, punctures becoming larger and rugosely confluent laterally; scutellum small and acuminate.

Elytra. Wider than pronotum; lateral margins parallel from obliquely rounded humeri to near middle, then gradually narrowed to separately rounded apices; marginal serrations beginning at middle becoming larger apically; disk glabrous, finely punctate medially, punctures larger and confluent laterally; with typical pattern of costae and foveae, foveae shining golden-green.

Ventrally. Finely sparsely punctate medially, more coarsely sculptured laterally; semirecumbent white setae laterally and on legs; anterior margin of prosternum with trace of median lobe and with dense semierect white setae in transverse depression behind margin; prosternal process convex with punctate groove near lateral margin; profemur with weakly serrate obtuse tooth; mesofemur without evident row of teeth; metafemur with row of evident

teeth; protibia arcuate, mesotibia straight, both with row of teeth; metatibia straight, without teeth; abdominal sternites feebly concave along midline, each with smooth callus near lateral margin, callus acutely tooth-like on last sternite; posterior angles of each sternite acutely produced; last visible abdominal sternite with serrate submarginal crest and serrate along lateral margin, apex deeply arcuately emarginate; pygidium convex, depressed in midline apically, and with submarginal area densely punctate and clothed by dense white setae.

Male genitalia (Fig. 30). Abruptly narrowed to short narrowed apex; abruptly angulate below when viewed from side.

Length 22.5mm; **width** 8.0mm.

FEMALE ALLOTYPE: Differs from male as follows: front of head and antennae blue with aeneous tint, clypeus more cupreous; front with distinct chevron and with callosities above antennal sockets; prosternum with setae less dense anteriorly; pro- and mesotibiae without row of teeth; last visible abdominal sternite with midline carina and arcuate narrow emargination apically; apex of pygidium with elongate median tooth curved downward and projecting well beyond rather strongly produced lateral angles.

Length 21.5mm; **width** 8.0mm.

Type material: All from MEXICO, MICHOACAN. Holotype, male [USNM, No. 72505] from 9 mi S Cuatro Caminos, 12-VII-72, G. H. Nelson. Allotype, female [GHN] from same place, 11-VII-72, G. H. Nelson. Paratypes: 1 male, same data as holotype; 4 males, 3 females, type locality, 13-VII-72, G. H. Nelson; 3 males, 5 females, type locality, 20-VII-66, D. S. Verity and G. C. Walters; 1 female, type locality, 29-VII-66, D. S. Verity; 1 male, 1 female, 11 mi E Apatzingan, 20-VIII-54, E. G. Linsley, J. W. MacSwain, & R. F. Smith. Paratypes are deposited in the following collections: UCB, GHN, DSV, and GCW.

VARIATION: Some specimens are more vivid blue than others. Males vary from 21.0 to 23.0mm long and from 7.0 to 8.0mm wide; females from 19.0 to 22.5mm long and from 6.5 to 8.0mm wide.

HOST: Most of the type series were taken on trunks of downed *Prosopis juliflora* (Sw.) D. C. but some were collected on *Acacia* sp.

COMPARISONS: The blue color makes *C. verityi* distinctive. It is structurally most similar to *C. atabalipa* and *C. paratabalipa*, but the male genitalia will distinguish it. The short narrowed apical area of the aedeagus is similar to *C. atabalipa*, but when viewed from the side the angulation below is more abrupt in *C. verityi* and the narrowed apical area is not as elongate as in *C. paratabalipa*.

It is named for David S. Verity, good friend and fine collector.

12. *Chrysobothris atabalipa* Laporte & Gory (Fig. 8b, 19, 31)

Chrysobothris atabalipa Laporte & Gory, 1841, Monogr. Bupr., 2:43; Pl.8, Fig. 60.

DIAGNOSIS: Cupreous-brown above, shining cupreous below; first segment of metatarsus 2.5 or more times as long as high (Fig. 8b); male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus with parameres abruptly constricted to moderately elongate narrow apex (Fig. 31); mesotibia of female faintly arcuate; pygidium of female

with median apical tooth strongly projecting beyond rather strongly produced lateral lobes (Fig. 19).

FEMALE LECTOTYPE: Head. Antennae and head bronze; front flattened, densely confluent punctate, moderately clothed with semirecumbent white setae, with smooth raised areas above antennal sockets, as chevron on front and as grooved longitudinal line on occiput; clypeus triangularly emarginate, broadly rounded on each side; antennae narrowed apically, first segment elongate globose, second short rounded, third elongate parallel, subequal in length to fourth and fifth combined, serrate from fourth distalward.

Pronotum. Distinctly wider than long; sides faintly sinuate and gradually diverging from base to widest at apical fourth, then obliquely converging to narrowest at anterior angles; anterior margin shallowly arcuately emarginate with faint median lobe; base arcuately emarginate on either side of truncate median lobe; disk convex, glabrous, finely sparsely punctate toward middle, punctures becoming confluent and coarse laterally.

Elytra. Slightly wider than pronotum; sides parallel from rounded humeri to middle, then arcuately converging to separately rounded apices; lateral margins strongly serrate posteriorly; disk convex, glabrous, finely densely punctured; with typical pattern of costae and foveae.

Ventrally. Nearly impunctate medially, punctures becoming coarse and dense laterally; setae white, semirecumbent and moderately dense laterally throughout, setae longer and semierect more medially on prosternum; prosternum with anterior margin feebly broadly lobed; prosternal process impunctate except for impressed punctate submarginal line; profemur with serrate obtuse tooth, meso- and metafemora with row of teeth along posterior border; protibia arcuate, mesotibia feebly so, metatibia straight, none with row of teeth; first segment of metatarsus 2.5 or more times as long as high (Fig. 8b); abdominal sternites shallowly depressed in midline, smooth along posterior margins, with purplish callosities laterally, callosity on last sternite acutely tooth-like; posterior angles of sternites acutely produced; last visible sternite with lateral margins serrate, apex shallowly arcuately emarginate, disk with median carina in basal two-thirds; pygidium with narrow median tooth curved downward and projecting well beyond strongly produced lateral lobes (Fig. 19).

Length 18.5mm; **width** 7.0mm.

Redescribed from female lectotype, designated by A. Descarpentries [MHNP].

MALE: Differs from female as follows: Head with front and basal antennal segments golden-green, vertex and apical antennal segments bronzy; pro- and mesotibiae with row of teeth; last visible abdominal sternite without median carina, apex deeply arcuately emarginate; pygidium convex, depressed in midline apically, and with submarginal area densely punctate and clothed by dense white setae.

Male genitalia (Fig. 31). Abruptly constricted to short narrow apex; obliquely angulate below when viewed from side.

Length 17.5mm; **width** 6.2mm.

Described from male plesiallotype from MEXICO, OAXACA, 3 mi W Tehuantepec, 20-VII-65, G. H. Nelson [GHN].

VARIATION: The cupreous color may be dulled, possibly by killing medium, and the apical tooth of the pygidium on the female may be shortened oc-

asionally. Males vary from 15.5 to 22.0mm long and from 5.3 to 7.8mm wide; females from 13.5 to 21.0mm long and from 4.7 to 7.5mm wide.

GEOGRAPHICAL DISTRIBUTION: (From 646 specimens examined) **MEXICO:** YUCATAN: Pisté, 120 km E Mérida, near Chichén-itza, VI to IX-68, E. C. Welling; Tinum, V-68, E. C. Welling; Temax, Gaumer; QUINTANA ROO: X-cán Nuevo, VI-VII-67, E. C. Welling; Cozumel, 9-IX-68; CHIAPAS: Tuxtla Gutierrez, 1800 feet, (6-10)-VII-55, P. & C. Vaurie; Simojovel, (1-16)-VIII-58, J. A. Chemsak; OAXACA: La Ventosa, 6-IV-53, E. I. Schlinger; El Camaron, 4-IV-56, D. H. Janzen; Tehuantepec, 1-VI-05, Fred K. Knab; 5 mi N Tehuantepec, 10-VIII-64, E. Fisher & D. S. Verity; 3 mi W Tehuantepec, 9-VII to 2-VIII-65 and (1-3)-VII-72, G. H. Nelson; 25 mi SE El Camaron, 22-VIII-64, E. Fisher & D. S. Verity; PUEBLA: Tehuitzingo, 27-II-53, R. C. Bechtel & E. I. Schlinger; Izucar de Matamorís, 24-VII-62, A. E. Michelbacher; GUERRERO: Chilpancingo, 23-VII-62, A. E. Michelbacher; NAYARIT: Navarrette, 1-VII-62, A. E. Michelbacher; 12.3 mi NE San Blas, 21-VII-63, R. L. Westcott; 14 mi E San Blas, 21-VII-54, E. I. Schlinger. **GUATEMALA,** Torola, 1000 feet, Champion.

HOST: Collected on *Acacia pennatula* (S. & C.) Benth.

COMPARISONS: Most similar to *C. paratabalipa* and *C. verityi* and compared to the latter under that species. From *C. paratabalipa* it can be distinguished by the male aedeagus as indicated in the key. Females are separated with difficulty, and the smaller size of *C. atabalipa* (average 18.2mm) as compared to 21.6mm in *C. paratabalipa* is not always indicated, however the mesotibia is slightly arcuate in *C. atabalipa* and straight in *C. paratabalipa*. Small specimens are similar to *C. brevitarsis* and are compared under that species.

13. *Chrysobothris paratabalipa* Nelson, **new species** (Fig. 2, 3, 32)

DIAGNOSIS: Cupreous-brown above, shining aeneo-cupreous below; first segment of metatarsus 2.5 or more times as long as high; male with third segment of antenna elongate, femora without dense brush on inner margin, and aedeagus abruptly constricted to moderately elongate narrow apex (Fig. 32); female mesotibia straight, pygidium with apical median tooth strongly projecting beyond rather strongly produced lateral lobes.

This species is so similar to *C. atabalipa* that only the differences will be mentioned.

MALE HOLOTYPE: Head. Front golden with green tint and antennae aeneo-cupreous basally, more cupreous apically; mesotibia straight.

Male genitalia (Fig. 32). Abruptly narrowed to moderately elongate apex; abruptly angulate below when viewed from side.

Length 21.0mm; **width** 7.5mm.

FEMALE ALLOTYPE: Differs from male as in *C. atabalipa*. Differs from female of *C. atabalipa* in having mesotibia straight.

Length 21.5mm; **width** 8.0mm.

Type material: All from MEXICO. Holotype male and allotype female [CAS, Department of Entomology] from OAXACA, Valerio Trujano, 4500 feet, 29-VII-37, M. A. Embury. Paratypes: 9 males, 16 females, same data as holotype; 3 males, 9 females, same place, 28-VI-37, M. A. Embury; 1 male, near Tecomavaca, 500 meters, 28-VI-72, G. H. Nelson; 2 females, MORELOS: 1 male,

Morelos, 2-XI-02, Koebele; 3 males, 2 females, 15 mi S Cuernavaca, 15-XI-46, E. C. Van Dyke; 1 male, GUERRERO: 6 mi S Rio Mexcala, 6-VIII-65, G. H. Nelson; 1 male, 5 mi S Iguala, 15-XI-46, E. C. Van Dyke; 1 male, 1 female, Zopilote Canyon, 30 mi N Chilpancingo, 29-VIII-69, D. S. Verity; 1 male, 1 female, Zopilote Canyon, 24 mi N Chilpancingo, 11-VII-70, E. Fisher & P. Sullivan; 2 males, MEXICO; 1 male, DISTRITO FEDERAL, J. R. Inda; 1 male, no data. Paratypes are deposited in the following collections: ANSP, BMNH, USNM, CAS, GHN, DSV, and RLW.

VARIATION: Males vary from 19.5 to 23.5mm long and from 7.0 to 8.5mm wide; females from 17.0 to 23.5mm long and from 6.0 to 8.5mm wide.

HOST: Collected on dead limb of *Prosopis juliflora* (Sw.) D. C. and on *Acacia* sp.

COMPARISONS: Similar to *C. atabalipa* and *C. verityi* and compared under those species.

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DISPOSITION OF THE HOLOTYPE OF *EDAPHUS* *CONGENER* PUTHZ (COLEOPTERA: STAPHYLINIDAE)

Edaphus congener Puthz, 1974 (Studies on the Neotropical Fauna, 9(1):35-37) was based on 5 specimens from Brazil in the collection of the University of California at Riverside. The holotype male and 2 paratype females were returned to this institution. The holotype will be deposited on permanent loan in the collection of the California Academy of Sciences at San Francisco.—Ian Moore, Staff Research Associate, Division of Biological Control, University of California, Riverside 92502.